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Sent via E-mail and FedEx

December 22, 2008
In reply refer to SHEA-108130

Mr. Mohinder S. Sandhu, P.E.
Permit Appeals Officer
Department of Toxic Substances Control
8800 Cal Center Drive, MS R1-2
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Subject: Brief on Appeal and Supporting Statement of Reasons
Class 2 Permit Modification Decisions for Two
Post-Closure Permits at the Santa Susana Field Laboratory – The Boeing Company
Areas I and III (EPA ID CAD093365435) and NASA AREA II
(EPA ID CA1800090010)

Dear Mr. Sandhu:

The Boeing Company (Boeing), on behalf of itself and the National Aeronautical Space Administration (NASA), respectfully submit this Brief on Appeal and Supporting Statement of Reasons. This Brief addresses the issues granted review in your ORDER PARTIALLY GRANTING PETITION FOR REVIEW AND DENIAL OF REVIEW (ORDER) dated November 4, 2008, pertaining to the California Department of Toxic Substances Control (DTSC) Class 2 Permit Modification Decisions for Two Post-Closure Permits at the Santa Susana Field Laboratory – Boeing Areas I and III (EPA ID CAD093365435) and NASA AREA II (EPA ID CA1800090010) (Permit Modification Decisions).

BRIEF ON APPEAL AND SUPPORTING STATEMENT OF REASONS

DTSC issued its Permit Modification Decision on November 19, 2004. Boeing and NASA submitted a Request for Review of the Permit Modification Decisions and a hearing on the merits on December 22, 2004 (Request for Review). Boeing and NASA refer to and incorporate in this Brief on Appeal the comments provided in their Request for Review. Boeing and NASA respectfully request that the Permit Appeals Officer make the revisions to the Permit Modification Decisions as indicated by their Request for Review and as further discussed herein. Boeing and NASA also respectfully request that the Permit Appeals Officer deny the comments submitted by Petitioner Chandler as without merit, as discussed below. Boeing and NASA further request an informal appeals conference upon the close of the briefing period.

Boeing and NASA Comment II-A
The Permit Imposes an Excessive Constituent of Concern Analysis That Does Not Adequately Consider Historical Data

Boeing and NASA proposed in its Class 2 Permit Modification to analyze Constituents of Concern once during the initial year and once very five years thereafter. DTSC's

modification requires quarterly sampling and analysis of Constituents of Concern the first year and possible reduction to semi-annually thereafter. As stated in Boeing and NASA's Request for Review, the Permit Modification Decisions impose excessive Constituents of Concern analyses. These requirements do not adequately consider historical data, which demonstrate that the requirements are excessive.

A robust groundwater quality data set has been developed for the SSFL site covering a span of several decades. In total, over 350 wells and peizometers have been sampled, yielding more than 19,000 samples and over 525,000 individual analyses. The results of the extensive and long-term groundwater sampling and analyses conducted at the facility have been provided to DTSC, and demonstrate that the blanket requirement for Constituent of Concern (COC) analyses as a "minimum analytical suite" is not warranted and is excessive. These data indicate that the area of impacts to groundwater at and in the vicinity of SSFL can be more than adequately demonstrated by a thoughtful analytical approach.

In particular, through 2005, The Boeing Company had collected and analyzed over 2,200 groundwater samples for parameters other than volatile organic compounds listed in the DTSC Permit Modification Decisions. (Haley & Aldrich, Inc., *"Evaluation of Constituents of Concern Relative to Volatile Organic Compounds (VOCs) in SSFL Groundwater Samples,"* 3 August 2006, Attachment 1)[1]. These data were made available to DTSC.

In all occasions but one, the validated data indicate that the samples where non-volatile organic COCs were indicated are associated with the detection of VOCs in groundwater. All other instances involved common laboratory contaminants or naturally occurring COCs (sulfate, nitrate or ammonia). The single instance, out of 2,200 groundwater samples, of a non-volatile organic COC detection independent of VOC detections was from an on-site monitoring well location in an identified and documented area of groundwater impacts. The data therefore demonstrate that monitoring on a regular basis for a select indicator analytical suite, such as VOCs, is an appropriate and effective method for monitoring groundwater conditions.

The complete Constituents of Concern analyses should be required only once initially to determine an appropriate indicator analytical suite, i.e. "monitoring parameters" such as VOCs, pursuant to requirements of 22 CCR Section 66264.97. Then, in order to ensure that the indicator analytical suite continues to be appropriate, the complete Constituents of Concern analyses should be repeated on at least a five-year frequency, as specified in 22 CCR Section 66264.98(e)(5)(g).

Boeing and NASA Comment II-B
Requiring Quarterly Monitoring Disregards Historical Sampling and Water Quality Trends

Boeing and NASA's Class 2 Permit Modification proposed analyzing wells semi-annually. As stated in Boeing and NASA's Request for Review, the Permit Modification Decision

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[1] All documents referenced herein have been previously submitted to DTSC. For the Permit Appeals Officer's convenience, Boeing and NASA have included with this Brief on Appeal a compact disc (CD) containing in electronic format the documents referenced herein supporting Boeing and NASA's arguments. Boeing and NASA request that these documents be included in the administrative record of this permit modification appeal.

requires quarterly monitoring. This requirement disregards historical sampling and water quality trends.

The data developed through extensive groundwater sampling and analyses at the facility and provided to DTSC demonstrate that the requirement for collection of quarterly groundwater samples for analyses is not warranted or supported.

The Boeing Company and NASA have provided DTSC with a robust, significant data set and interpretations related to groundwater quality trends. Examples of the information provided to DTSC for evaluation of water quality trends are the concentration versus time plots included in:

Groundwater Resources Consultants, Inc., 2000. "Annual Groundwater Monitoring Report, Santa Susana Field Laboratory, 1999, Boeing North American, Inc., Rocketdyne Propulsion & Power, Ventura County, California." 28 February 2000 [Attachment 2].

Haley & Aldrich, Inc., 2001. "Report on Annual Groundwater Monitoring, 2000, Santa Susana Field Laboratory, Ventura County, California." 28 February 2001. [Attachment 3]

Haley & Aldrich, Inc., 2002a. "Report on Annual Groundwater Monitoring, 2001, Santa Susana Field Laboratory, Ventura County, California." 28 February 2002. [Attachment 4]

Haley & Aldrich, Inc., 2002b. "Report on Appendix IX Groundwater Monitoring, 2001, Santa Susana Field Laboratory, Ventura County, California." 22 March 2002. [Attachment 5]

Haley & Aldrich, Inc., 2003a. "Report on Annual Groundwater Monitoring, 2002, Santa Susana Field Laboratory, Ventura County, California." 28 February 2003. [Attachment 6]

Haley & Aldrich, Inc., 2003b. "Addendum to Report on Annual Groundwater Monitoring, 2002, Santa Susana Field Laboratory, Ventura County, California." 4 March 2003. [Attachment 7]

Haley & Aldrich, Inc., 2004. "Report on Annual Groundwater Monitoring, 2003, Santa Susana Field Laboratory, Ventura County, California." 27 February 2004. [Attachment 8]

Haley & Aldrich, Inc., 2005. "Report on Annual Groundwater Monitoring, 2004, Santa Susana Field Laboratory, Ventura County, California." 28 February 2005. [Attachment 9]

Haley & Aldrich, Inc., 2006. "Report on Annual Groundwater Monitoring, 2005, Santa Susana Field Laboratory, Ventura County, California." 28 February 2006. [Attachment 10]

Haley & Aldrich, Inc., 2007. "Report on Annual Groundwater Monitoring, 2006, Santa Susana Field Laboratory, Ventura County, California." 28 February 2007. [Attachment 11]

Haley & Aldrich, Inc., 2008. "Report on Annual Groundwater Monitoring, 2007, Santa Susana Field Laboratory, Ventura County, California." 28 February 2007 [Attachment 12]

These data were developed and submitted to DTSC through extensive groundwater sampling and analyses at the facility. They demonstrate that the quarterly monitoring requirement

frequency is excessive and is not justified by the observed stability in groundwater quality and overall declining trends in the concentrations of COCs in groundwater.

Additional information has been provided to DTSC supporting the justification for a reduced sampling and analysis frequency of less than quarterly. These data include an analysis of the stability of areas of impacted groundwater at the SSFL (MWH, "Evaluation of Monitoring Results Obtained during the Cessation of Groundwater Extraction," August 2006; Attachment 13). This study was conducted to aid in identifying overall groundwater quality trends at the site. This evaluation determined that water quality in wells located at the perimeter of groundwater impact areas showed no appreciable concentration changes (or no additional detections) throughout the period from 2000 to 2006. The study indicated that the perimeters of the groundwater impact areas – the plume boundaries - were nearly stationary, as was expected because of the attenuating effects of matrix diffusion, sorption, dispersion and degradation.

These conclusions are supported by the Site Conceptual Model (Cherry, McWhorter and Parker, 2007; Attachment 14), which states:

> *The results of long-term sampling of monitoring wells, the large contaminant mass diffused into the rock matrix and the behavior of contaminant plumes indicated by the DFN modeling have important implications concerning long-term groundwater monitoring. The first implication is that, because changes in contaminant distribution occur only slowly, monitoring wells need not be sampled frequently and some wells should be sampled less frequently than others. For example, wells showing substantial concentrations at or near contaminant input areas (i.e. source areas) should be sampled very infrequently (e.g. at 5 year intervals) and those near actual or suspected plume fronts should be sampled more frequently (e.g. annually or twice-annually). The concentration versus time trends for each monitoring well with a long record should be assessed for selection of future monitoring frequency. (Pg. 23)*

Moreover, Boeing and NASA have identified many instances where DTSC has established monitoring frequencies less than quarterly based on information, data and analysis provided by the permit holders. Examples of recent Post-Closure monitoring programs approved by DTSC with monitoring frequencies less than a quarterly minimum include:

- The Blue Hills Disposal Facility (EPA ID No.CAT08000606), Fresno County, California, September 7, 2007 [Attachment 15];
- The Conoco-Phillips Los Angeles Refinery Carson Plant (EPA ID No.CAD980881676), Los Angeles County, California, October 25, 2007 [Attachment 16]; and,
- United Technologies Corporation, Pratt & Whitney (EPA ID No.CAD001705235), Santa Clara County, California, November 30, 2006 [Attachment 17].

These examples demonstrate the authority exercised by DTSC to determine appropriate site-specific sampling frequencies under 22 CCR 66264.97(e)(12). The information, data and analysis submitted by Boeing and NASA here support a similar determination.

Boeing and NASA Comment II-C
The Monitoring Network Includes Existing Wells Unrelated to the Regulated Units

Boeing and NASA's permit modification application proposed monitoring a limited number of wells proximal to the Surface Impoundments (71 wells). The permit modification expanded the total to 129 wells, many at distance from the Surface Impoundments, without providing a technical or regulatory basis for the expansion. As stated in Boeing and NASA's Request for Review, the permit modifications require monitoring of wells that are not related to the Regulated Units.

This is best illustrated by reviewing the monitoring networks required for the APTF-1, APTF-2, ABSP and DELTA Regulated Units. The attached Figures 1 and 2 [Attachments 18 and 19] present the locations of the wells that DTSC included in the monitoring network for the November 19, 2004 Class 2 Permit Modification Decisions with respect to the associated Regulated Units. As can been seen from the figures, many Evaluation Monitoring Wells are not proximal to the former impoundments. Thus, they provide no basis for monitoring past releases from the impoundments with which they are associated.

In fact, some monitor wells are closer on a geographic, hydrologic, or hydrogeologic basis to other impoundments or facilities (Solid Waste Management Units [SWMUs] or Areas of Concern [AOCs]). Investigations and monitoring for these facilities are managed through other programs being conducted at SSFL, including the on-going RCRA Corrective Action program. Designating "Evaluation Monitoring Wells" far removed from the associated impoundments will not provide groundwater sampling and analytical data that can be used to evaluate groundwater impacts related to past releases from the subject impoundments.

Boeing and NASA Comment II-D
The Monitoring Network Inappropriately Includes Wells Owned by Parties Other Than NASA or Boeing

Boeing and NASA's permit modification application proposed only wells owned or installed as part of facility investigations and excluded off-site "OS-wells." DTSC's permit modification included privately owned, off-site wells. As stated in the Boeing and NASA's Request for Review, the permit modification inappropriately includes wells not owned by NASA or Boeing, owned by parties other than NASA or Boeing, on property that NASA and Boeing do not own.

Boeing and NASA are not responsible for the disposition of, cannot maintain the security of and cannot guarantee access to wells they do not own and that are on property they do not own. This includes private wells OS-17, OS-24 and OS-26 which are designated as "Evaluation Monitoring Wells" for APTF-1 and APTF-2 in the November 19, 2004 Class 2 Permit Modification Decisions.

Boeing and NASA Comment II-E
The Sampling and Analysis Requirements Include Constituents Not Associated with the Impoundments or Which are Otherwise Inappropriate

Boeing and NASA's permit modification application included Constituents of Concern based on documentation of constituents released to Surface Impoundments. As stated in Boeing and NASA's Request for Review, the permit modifications require sampling and

analysis for constituents that are not associated with the former impoundments or are otherwise inappropriate.

The data developed through extensive groundwater sampling and analyses at the facility and provided to DTSC demonstrate that the DTSC list of Constituents of Concern from the November 19, 2004 Class 2 Permit Modification Decisions includes constituents that are not justified based on the records of chemical use at the subject impoundments. These constituents are:

(1) Perchlorate: Boeing and NASA submitted documentation to DTSC prior to the November 19, 2004 Class 2 Permit Modification Decisions that perchlorate was not a chemical identified to have been discharged to the closed surface impoundments (Haley & Aldrich, Inc., *"Supplemental Data Summary for the Water Quality Sampling and Analysis Plan,"* 16 May 2003; Attachment 20).

Data developed through extensive groundwater sampling and analyses at the facility and provided to DTSC demonstrate that perchlorate has not been detected in groundwater samples collected in the vicinity of the former impoundments, with the exception of APTF and STL-IV (Letter from The Boeing Company to The California Environmental Protection Agency, Department of Toxic Substances Control, Region II, *"Completion of Perchlorate Characterization Work Plan Activities"*, December 12, 2008 [Attachment 21]. In the vicinity of former impoundments APTF and STL-IV the perchlorate detections were most likely not associated with impoundment activities. These findings were determined during the RCRA Corrective Action program currently underway at the SSFL.

Additionally, Boeing has developed extensive groundwater monitoring programs for perchlorate at SSFL. These groundwater monitoring programs address those areas where detections of perchlorate were identified based on significant and geographically-broad past monitoring performed at and in the vicinity of SSFL. In light of these groundwater monitoring programs, the blanket inclusion of perchlorate as a constituent of concern in the Permit Modification for all impoundments is unwarranted.

(2) Phthalates: Boeing and NASA submitted documentation to DTSC prior to the November 19, 2004 Class 2 Permit Modification Decisions that phthalates were not a class of chemical identified to have been used at any of the nine closed surface impoundments (Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003). Although phthalates have been reported by laboratories as being detected in groundwater samples, data developed through extensive groundwater sampling and analyses at the facility and provided to DTSC demonstrate that phthalates are a laboratory contaminant (Haley & Aldrich, Inc., "Report on Annual Groundwater Monitoring, 2007", February 28, 2008). Data validation and rigorous quality assurance and quality control (including confirmation sampling) have determined that detections of phthalates in groundwater samples were associated with detections of the same compounds in sample blanks analyzed or were not reproducible by subsequent follow-up sampling. In view of the likelihood of laboratory contamination, the blanket inclusion of perchlorate as a constituent of concern in the Permit Modification Decisions for all impoundments is excessive, unnecessary and without technical basis.

(3) Sulfuric Acid: At the pH and Eh of normal groundwater identified at SSFL, sulfuric acid would dissociate and be present as sulfate ions. The "Background" water quality analyses included in the November 19, 2004 Class 2 Permit Modification Decisions include sulfate and pH which will provide data for demonstrating possible releases of sulfuric acid.

(4) Napthene vs. Naphthalene: Which compound DTSC requires in the monitoring program requires clarification. Because Napthenes are a generic class of compounds, an analytical method is not available that can determine its specific concentration in groundwater.

For reference, excerpts from definitions in the Merck Index for Napthene and Naphthalene are provided below:

> *Napthenes- "A term used in petroleum chemistry to denote certain saturated hydrocarbons, specifically five- and six-carbon cycloparaffins and their alkyl derivatives, found in crude petroleum. Sometimes used to include polycyclic members found in the higher-boiling fractions."*
>
> *Naphthalene- "Naphthalin; naphthene; tar camphor. C10H8; ....."*.

Assuming that DTSC is referring to Napthalene, although Naphthalene was detected in groundwater samples collected from wells in the vicinity of the former ECL impoundment, the results could not be reproduced or confirmed (Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003; Attachment 20). Inclusion of Naphthalene in the constituents to be monitored for at the remaining former impoundments is inappropriate based on the data for those impoundments developed through extensive groundwater sampling and analyses at the facility which has been previously provided to DTSC (*e.g.*, Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan," 16 May 2003, and Haley & Aldrich, Inc., "Report on Annual Groundwater Monitoring, 2007," February 28, 2008).

(5) Hydrazine: Hydrazine and hydrazine compounds should be removed from the analytical suite because of the lack of appropriate, certified methodologies. A certified analytical method cannot be identified for hydrazine.

The August 28, 2008 letter from Boeing to DTSC entitled *"Hydrazine, Unsymmetrical Dimethyl Hydrazine and Mono Methyl Hydrazine Soil Analysis, Santa Susana Field Laboratory, Ventura County, California"[Attachment 22]* indicates that soil analyses for hydrazines were rejected due to quality control concerns. The letter states:

> *There are no promulgated EPA or ASTM methods for hydrazine, UDMH or MMH. California does not certify a method for hydrazine compounds and there are only a limited number of laboratories who conduct the analysis under proprietary methodologies. Boeing's contractors have contacted a number of these analytical laboratories and, to date, have been unable to identify a laboratory that we are confident would be successful at analyzing*

SSFL soil samples for hydrazine, UDMH and MMH without significant improvements in the analytical technology.

Recent discussions with analytical laboratories indicate this also applies to groundwater analyses for hydrazine compounds.

Moreover, the PCP modification already includes analysis for NDMA and formaldehyde, considered to be breakdown products of hydrazine, in groundwater samples. Thus, the inclusion of hydrazine is without technical basis and repetitive.

(6) Sodium Azide: Sodium Azide is highly soluble and present in water as ionic sodium and an azide group. As a result, sodium azide, per se, cannot be determined in water. Sodium is currently monitored for, but there is currently no EPA-certified method for analysis of the azide ion. Thus, sodium azide should be removed from the analytical suite because of the lack of appropriate, certified methodologies.

Boeing and NASA Comment II-F
The Modification Imposes Improper Analytical Methods

As stated in Boeing and NASA's Request for Review, the permit modifications require analyses for constituents to be performed using improper analytical methods. These improper analytical methods should be removed from the permit modification:

(1) 1,3-Dinitrobenzene using 82608: EPA SW 846 indicates that the approved method for analysis of 1,3-dinitrobenzene is 8270C.

(2) Hydrazine, MMH, UDMH: There is currently no promulgated EPA or ASTM method for the analysis of hydrazines. The State of California does not certify any method for analysis of hydrazine compounds in groundwater. For the reasons stated above, hydrazine and hydrazine compounds should be removed from the analytical suite because of the lack of appropriate, certified methodologies.

Boeing and NASA Comment II-G
The Modification Citation for Concentration Limits is Incorrect

As stated in Boeing and NASA's Request for Review, the permit modifications contain the apparently inappropriate citation to 22 CCR 66284.97(3)(11)(B). The citation 22 CCR 66284.97(3)(11)(B) could not be identified. The citation that appears to be appropriate is 22 CCR 66264.97(e)(11)(B), which states:

"(11) Upon approval of the procedures for determining background values proposed pursuant to subsection (e)(10) of this section, the Department shall specify in the facility permit one of the following for each constituent of concern and for each monitoring parameter:
(B) a detailed description of the procedure to be used by the owner or operator for establishing and updating the background value as proposed pursuant to subsection (e)(10)(B) of this section."

Comments III-A through D
The Modification Contains Several Factual Errors or Omissions

Boeing and NASA Comment III-A

Boeing and NASA's permit modification application included selection of well HAR-24 as a Background Well at APTF. As stated in Boeing and NASA's Request for Review, the permit modifications inappropriately reject HAR-24 as a Background Well at APTF, without technical or regulatory basis.

Boeing and NASA submitted documentation to DTSC prior to the November 19, 2004 Class 2 Permit Modification Decisions that HAR-24 was located upgradient of the former APTF impoundments (Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003). This documentation contains figures indicating the direction of Chatsworth Formation groundwater movement at APTF. Thus, HAR-24 should be identified as a Background Well at APTF.

Boeing and NASA Comment III-B

Boeing and NASA's permit modification application included selection of well HAR-11 as a Background Well at APTF. As stated in Boeing and NASA's Request for Review, the permit modifications inappropriately reject HAR-11 as a Background Well at ABSP, without regulatory or technical basis.

Boeing and NASA submitted documentation to DTSC prior to the November 19, 2004 Class 2 Permit Modification Decisions that HAR-11 was located upgradient of the former ABSP impoundment with respect to near surface groundwater flow and surface water drainage (Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003). This documentation contains figures indicating the direction of Near Surface groundwater movement at ABSP. Thus, HAR-11 should be identified as a Background Well at ABSP.

Boeing and NASA Comment III-C

Boeing and NASA's permit modification application included selection of well HAR-33 as an Evaluation Monitoring Well at STL-IV-1. As stated in Boeing and NASA's Request for Review, the permit modifications misidentify ES-33 as an Evaluation Monitoring Program Well at STL-IV-1, without regulatory or technical basis.

ES-33 is not a monitor well number used for the SSFL project. Rather, Boeing proposed HAR-33 as an Evaluation Monitoring Well for STL-IV-1. For reference, the figures in Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003, indicate the location of monitor well HAR-33. Thus, HAR-33 should be identified as an Evaluation Monitoring Program Well at STL-IV-1, and ES-33 should be removed.

Boeing and NASA Comment III-D

As stated in NASA and Boeing's Request for Review, the Permit Modification Decisions references transpose the former impoundments SPA-1 and SPA-2. The former SPA-1 impoundment is located approximately 400 feet west of the former SPA-2 impoundment.

For reference, the figures in Haley & Aldrich, Inc., "Supplemental Data Summary for the Water Quality Sampling and Analysis Plan", 16 May 2003, indicate the correct locations of SPA-1 and SPA-2. Thus, the correct locations of SPA-1 and SPA-2 should be identified.

ARGUMENTS ON COMMENTS FOR WHICH STANDING WAS GRANTED TO PETITIONER PHILLIP CHANDLER (hereinafter, "Petitioner")

Petitioner Comment 2a, Regarding Sampling Frequency
"Inappropriate and Deceptive DTSC Policy of Changes to the Groundwater Sampling Frequency for Point of Compliance, Background, Detection, Evaluation, and Corrective Action Monitoring and Response Programs"

With respect to Petitioner Comment 2a regarding minimum sampling frequency, Boeing and NASA respectfully submit that the Class 2 Permit Modification Decisions appropriately address, incorporate, and comply with DTSC regulations.

DTSC regulations addressing sample points within Detection and Evaluation Monitoring Programs (CCR Title 22, §66264.98 and CCR Title 22, §66264.99, respectively) stipulate sampling for Monitoring Parameters pursuant to 22 CCR §6624.97 (e) (12).

For reference, the relevant excerpts of CCR Title 22, §66264.97 (e) (12) state:

> *(12) For each constituent of concern and monitoring parameter listed in the facility permit, the owner or operator shall propose, for approval by the Department, the sampling methods to be used to establish background values and the sampling methods to be used for monitoring pursuant to this article. Upon final approval by the Department, sampling methods consistent with the following shall be specified in the facility permit.*
>
> *(A) The number and kinds of samples collected shall be appropriate for the form of statistical test employed, following generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that:*
> *1. for a detection monitoring program, a release from the regulated unit will be detected;*
> *2. for an evaluation monitoring program, changes in water quality due to a release from the regulated unit will be recognized; ...*
>
> *(B) ... The sampling method shall include...*
> *1. a sequence of at least four samples collected at least semiannually from each monitoring point and each background monitoring point and statistical analysis performed at least semi-annually... For groundwater, the sampling frequency and the interval between successive sampling events shall be based upon the rate of groundwater flow, and upon any variation in groundwater flow rate and direction...*

This regulation thus establishes a general requirement for semi-annual monitoring of both COCs and Monitoring parameters, although it is expressly stated that the prescribed frequency of groundwater monitoring may be modified based on hydrologic conditions. It is not stated in the text that changes to the frequency of groundwater monitoring based on

hydrologic conditions may be instituted only to increase to the frequency of sampling, as implied by Petitioner. The regulations grant DTSC authority to determine a proper groundwater sampling interval.

CCR Title 22, §66264.98, which prescribes Detection Program sampling requirements, establishes a different sampling frequency for COCs in subsection (g):

> *In addition to monitoring for the monitoring parameters specified under subsection (e) of this section, the owner or operator shall periodically monitor for all constituents of concern specified in the facility permit and determine whether there is statistically significant evidence of a release for any constituent of concern using the statistical procedure specified pursuant to section 66264.97(e)(7). The Department shall specify in the facility permit the frequencies and locations for monitoring pursuant to this subsection after considering the degree of certainty associated with the expected or demonstrated correlation between values for monitoring parameters and values for the constituents of concern. Monitoring pursuant to this subsection shall be conducted at least every five years.*

CCR Title 22, §66264.99, which prescribes Evaluation Program sampling requirements, also uses the term "periodically" to describe the sampling frequency for COCs, and indicates that sampling frequency will be determined "after considering the degree of certainty associated with the demonstrated correlation between values for monitoring parameters and values for the constituents of concern" (subsection (e)(4)).

CCR Title 22, §66264.99, subsections (e)(4) and (e)(5) state:

> *(4) in addition to monitoring for the monitoring parameters specified pursuant to subsection (e)(2) of this section, the owner or operator shall periodically monitor for all constituents of concern specified in the facility permit and evaluate changes in water quality due to the release from the regulated unit. The Department shall specify the frequencies for monitoring pursuant to this subsection after considering the degree of certainty associated with the demonstrated correlation between values for monitoring parameters and values for the constituents of concern;*
>
> *(5) the owner or operator shall conduct water quality monitoring for each monitoring parameter and each constituent of concern in accordance with section 66264.97(e)(12).*

Subsection (e)(4), specifically dealing with sampling frequency of COCs, neither prescribes a set minimum sampling interval or invokes section 66264.97(e)(12)(B), but rather indicates that the Department will set sampling frequency based on site conditions. In contrast, although the following subsection, (e)(5), generally invokes section 66264.97(e)(12), it does not specifically address sampling intervals. The previous subsection, (e)(3), describing sampling frequency for Monitoring Parameters, does specifically invoke section 66264.97(e)(12). The clear intent of the regulations in subsection (e)(4) is for DTSC to establish the sampling frequency for COCs by the criteria described therein, rather than by invoking the general guidelines described in subsection 66264.97(e)(12).

The text of Title 22 indicates a distinction between the regulatory requirements for determining the sampling frequency for Monitoring Parameters and those for COCs. In either case, the regulations clearly allow the Department to determine, based on site conditions, the frequency of groundwater monitoring.

Sampling for Appendix IX constituents is also prescribed using different language than the general guidelines in section 66264.97(e)(12)(B). Subsections 66264.98(k)(2), 66264.98(n)(2) and 66264.99(e)(6) specifically require sampling at detection wells once following evidence of a release, and annual sampling at all monitoring points *in the affected media* thereafter.

DTSC has exercised its authority under the regulations cited above to establish permit monitoring frequency based on site conditions on a case-by-case basis to ensure the monitoring activities provide adequate information. As identified above, recent DTSC decisions regarding the following sites provide examples of DTSC exercising its regulatory authority to determine an appropriate sampling interval and number of sampling points under the various prescribed monitoring programs.

- The Blue Hills Disposal Facility (EPA ID No.CAT08000606), Fresno County, California, September 7, 2007 [Attachment 15];
- The Conoco-Phillips Los Angeles Refinery Carson Plant (EPA ID No.CAD980881676), Los Angeles County, California, October 25, 2007 [Attachment 16]; and,
- United Technologies Corporation, Pratt & Whitney (EPA ID No.CAD001705235), Santa Clara County, California, November 30, 2006 [Attachment 17].

Petitioner fails to establish that the sampling schedule in question represents an arbitrary reduction in sampling frequency, or a circumvention of the statute or regulations. As demonstrated above, the regulations allow DTSC to determine groundwater sampling intervals based on hydrologic or water quality conditions. Here, DTSC has at its disposal several decades of monitoring data representing the accumulated results of extensive investigations by the owners, DTSC, and other interested parties. DTSC thus has the authority under Title 22, and ample existing technical data, to determine an appropriate monitoring schedule based on site-specific conditions.

Petitioner Comment 5a
Appendix IX Twists

With respect to Petitioner Comment 5a regarding DTSC application of the regulatory term "affected medium" as used in 22 CCR 66264.99(e)(6), Boeing and NASA submit that the Permit Modification Decisions appropriately address, incorporate and comply with the regulations.

DTSC's application of the regulatory term "affected medium" to the Permit Modification Decisions is realistic, enforceable and protective of both the resource and the public, and should be retained as a basis for sound decision making. In contrast, Petitioner proposes an unbounded interpretation of the phrase "affected medium" that is not supported by the statute, supported by other determinations, or technically sound.

The proposal by Petitioner, that if the "affected medium" is groundwater then that means "all groundwater," creates a situation in which any limit on the scope of sampling can be questioned as an artificial restriction on the statute. Under this reasoning, any and all wells in existence, anywhere, could theoretically be designated as monitoring points so long as the well intersects the water table. Such an overly-broad interpretation would create a regulatory scheme that is unworkable and divorced from technical evaluation, and would impose unreasonable and unsupported requirements upon permitted facilities. It is the position of Boeing and NASA that this interpretation is without support from either groundwater science or regulatory precedent.

The statute does not intend for the mandated sampling programs to encompass "all groundwater." Reasonable and resource-protective determination of the appropriate scope of a sampling program requires criteria by which to evaluate the extent of potential impacts related to the regulated activities. The "all groundwater" interpretation of the regulation fails utterly in this regard, providing no guidance whatsoever to regulators as to the appropriate scope of a groundwater monitoring program.

Boeing does not wish to suggest that the Department lacks the statutory authority to compel a comprehensive monitoring program. Indeed, the monitoring program proposed by the Department is comprehensive. Rather, Boeing supports DTSC in establishing a technically defensible standard by which the scope of an appropriate and effective monitoring program can be determined.

Moreover, the interpretation that the term "affected medium" refers to that portion of the medium that has been affected by a past release from the regulated unit has been employed as basis for decision-making in other DTSC decisions. For example, in the "Statement of Basis for the proposed Post-Closure Permit United Technologies Corporation, Pratt & Whitney" issued September 28, 2006 [included in Attachment 17], DTSC declined to designate all wells on the site as part of the monitoring program, indicating that, based on site conditions, the number of wells was excessive for the purposes of the monitoring program. Similar reasoning also applies here.

Petitioner Comments 6a and 6b
"Failure to Adequately Address Environmental Media"

Petitioner Comment 6a: Regarding Media Other Than Groundwater

With respect to Petitioner Comment 6a regarding DTSC neglecting media other than groundwater, Boeing and NASA submit that the Class 2 Permit Modification Decisions appropriately address, incorporate and comply with the regulations.

CCR Title 22, Ch. 14, Section 66264.97 (d)(5) states in part:

> *Unsaturated zone monitoring is required at all new regulated units unless the owner or operator demonstrates to the satisfaction of the Department that no method for unsaturated zone monitoring can provide any indication of a release from that regulated unit.*

Petitioner's comment fails to consider this regulation and ignores site specific conditions. The standard established in this regulation clearly applies in this case.

The Regulated Units have been inactive and waste disposal mechanisms removed for over two decades. The former impoundments were backfilled, capped and drainage controls emplaced to prevent infiltration or erosion by surface waters. Contaminated soils were removed during closure of the impoundments. Drainage and infiltration controls are inspected annually in accordance with the Post-Closure Permit.

These factors should address Petitioner's comment, because groundwater cannot be "threatened by continuing discharge" from the Regulated Units. There is no utility and no need for a vadose-zone "early warning" system as called for by Petitioner because further releases from the Regulated Units are not possible and thus, "no method for unsaturated zone monitoring can provide any indication of a release from that regulated unit."

Further, the Regulated Units are currently in "Evaluation Monitoring" to determine the extent and nature of past releases from the Units, pursuant to CCR Title 22, Ch. 14, Section 66264.99. The Regulated Units are currently monitored under the appropriate regulations addressing sites with past releases. Thus, the Regulated Units are neither "new", nor subject to continuing discharge. Current site conditions therefore do not require either surface water monitoring or vadose zone monitoring for indications of a release from the regulated unit, nor contaminant limit determinations for these media.

Moreover, the condition of vadose-zone soils, soil vapor and surface water across the SSFL site have been assessed under an RCRA RFI investigation, results of which are presented in RCRA Facility Investigation Report, Surficial Media Operable Unit, Santa Susana Field Laboratory, Ventura County, California (MWH, 2004; Attachment 23). Further characterization of the SSFL site under the RCRA RFI program is currently ongoing. The condition of surface waters discharging from the SSFL site is currently monitored pursuant to the conditions of NPDES Permit No. CA0001309.

Finally, Petitioner has been granted standing only to address changes to the draft permit made after the close of public comment. The permit conditions did not contain soil gas monitoring in the draft permit. The addition of new monitoring programs not included in the draft permit are outside the scope of this appeal.

Petitioner Comment 6b: Regarding Pore Liquid and Pore-Gas in Fractured Bedrock

With respect to Petitioner Comment 6B regarding DTSC avoiding pore liquid and pore gas monitoring in fractured bedrock, Boeing and NASA submit that the Class 2 Permit Modification Decisions appropriately address, incorporate and comply with the regulations.

As indicated above, section 66264.97 (d)(5) states in part:

> *Unsaturated zone monitoring is required at all new regulated units unless the owner or operator demonstrates to the satisfaction of the Department that no method for unsaturated zone monitoring can provide any indication of a release from that regulated unit.*

Boeing and NASA's comments above regarding the current inactive status of the regulated units hold true here as well. The regulated units were removed, backfilled and capped over twenty years ago. There is therefore no possibility of continued release from the regulated units. An unsaturated-zone monitoring system can therefore serve no purpose for prevention or advance warning of discharges.

Cherry, McWhorter and Parker (2007), in the document *Overview of the Site Conceptual Model for the Migration and Fate of Contaminants in Groundwater at the Santa Susana Field Laboratory* [Attachment 14], concluded that there is limited potential for further migration of existing contaminants in subsurface media:

> *Thus, the TCE mass is expected to remain relatively close to the locations where the TCE entered the system. Other dissolved chemicals are subject to the same diffusion processes; hence their migration is also greatly slowed. (p. 2)*

Given the lack of continuing discharge from the Regulated Units and the stability of existing impacts to subsurface media, there is no utility for an unsaturated-zone monitoring system in Chatsworth Formation bedrock, and thus no regulatory requirement for such a system under Title 22, subsection 66264.97 (d)(5).

Moreover, as also indicated above, Petitioner has been granted standing only to address changes to the draft permit made after the close of public comment. Addition of new monitoring programs not included in the draft permit are outside the scope of this appeal process.

CONCLUSION

For all of the reasons described above, Boeing and NASA respectfully request that DTSC adopt the revisions to the Permit Modification Decisions presented in Boeing and NASA's Request for Review and this Brief on Appeal, and reject Petitioner Chandler's comments as without merit.

Thank you for considering this matter. Please feel free to direct questions to me at (818) 466-8795.

Sincerely,

//original signed by//

Arthur J. Lenox
Environmental Remediation

AJL:bjc
Attachments

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